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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,035	12/28/2001	Young Ho Bae	3449-0921PUS1	3483
2292 7590 03/17/2011 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
KACKAR, RAM N				
ART UNIT		PAPER NUMBER		
1716				
NOTIFICATION DATE		DELIVERY MODE		
03/17/2011		ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/029,035

Applicant(s)

BAE, YOUNG HO

Examiner

Ram N. Kackar

Art Unit

1716

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 February 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-8, 10, 16, 18 and 19 is/are pending in the application.
- 4a) Of the above claim(s) 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-8, 10, 16 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-940)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/8/2011 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 4-8, 10, 16 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In this instance the limitation “wherein a length from a stopper pin to a contact position of the glass substrate on the top surface of the sliding portion is about 10 mm to stabilize transfer of the glass substrate to the susceptor” is indefinite. It is noted that the contact position of the substrate on the raised perimeter sliding portion may vary depending upon the size of the substrate and the amount of its bending outside the lifting pins when supported by the lifting pins.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 4-8, 10, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants admitted prior art (AAPA) in view of Tepman et al (US 5589224).**

Applicants admitted prior art (AAPA) as disclosed in Figs 1 to Fig 4 A, B, C and D and the specification paragraphs 2-23 disclose as below:

A vacuum deposition apparatus having a process chamber (Fig 1-4A);

a rectangular shaped susceptor having a recessed central portion and raised perimeter around the recessed central portion acting as a sliding portion on which to slide the substrate toward a stopped position by stopper pins placed on the sliding portion (Fig 3 28 and 4A);

a robot arm for transferring the glass substrate along one direction to have the glass substrate positioned on the susceptor;

lift pins installed on the recessed central portion of the susceptor for moving the glass substrate up and down; and

stopping pins in a direction perpendicular to the susceptor.

AAPA further discloses that the range of sliding portion on the raised perimeter portion is 3-10 mm (Para 26) and that in the prior art it is about 5 mm (See Fig 3, its description and Para 19) at which distance the substrate is safely placed.

The only difference between the AAPA and the claimed invention is that AAPA does not disclose a groove to collect material disposed on the susceptor and increased length at the sliding part from the stopper pin to the point of substrate contact from 5mm to 10 mm.

Tepman et al disclose a vacuum deposition apparatus for PVD, CVD, sputtering, ion implanters etc (Col 1 lines 10-19), lift pins (Fig 1-30), robot arm (Fig 4 and Col 2 lines 13-16), stopping pin (40 being used to align the substrate) and groove around susceptor to collect deposition so that build up on the surface of the susceptor may not cause problem by sticking to the substrate (Fig 3-38 and Col 4 lines 54-63).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have grooves on the susceptor of AAPA in order to avoid problems of substrate sticking.

Regarding increasing the sliding distance as discussed above, from 5mm to 10mm, it would be obvious to optimize the width of the sliding portion to give the bent portion of the substrate enough space to become straight without stopper pin getting in its way.

Regarding the shape of the grooves: It was held in re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) that the shape was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular shape was significant. (Also see MPEP 2144.04(d)).

Similarly, regarding change in size/proportion: It was held in re Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984) that where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative

dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

6. Claims 4-8, 10, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants admitted prior art (AAPA) in view of DuBois et al (US 5855687).

AAPA is discussed above.

DuBois et al like Tepman as above disclose a vacuum deposition apparatus for CVD with heatable susceptor (Col 3 line 22-42 and lines 38-40), lift pins and robot arm (Col 5 lines 49-51), groove around susceptor to collect deposition so that build up may not cause problem by sticking to the substrate (Col 4 lines 43-48). Further, entire area inside the groove is available as a sliding part.

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have grooves on the susceptor in order to avoid problems of substrate sticking.

7. Claim 4 is also rejected under 35 U.S.C. 103(a) as being unpatentable over (AAPA) in view of Tepman et al (US 5589224) or alternatively in view of DuBois et al (US 5855687) as applied to claims (4-8, 10, 16 and 18) and further in view of Rempei Nakata (US 5119761).

Tepman et al and DuBois et al as discussed above do not disclose the susceptor to be made of Quartz.

Quartz susceptors are common for thermal processing for its thermal insulation properties.

Rempei Nakata discloses a quartz susceptor (Fig 12-106 and Col 1 lines 44-49).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have a susceptor of quartz for its excellent thermal properties of insulation.

Response to Amendment

Applicant's arguments filed 2/8/2011 have been fully considered but they are not persuasive.

Applicants reasons for non submission of drawings to explain load/unload are noted.

Regarding "Election by Previous Presentation" it is noted that search is only one part of examination. Further, patentability determination for apparatus claims is very different from process claims. Therefore entry of method claims is not allowed at this time.

Applicants argue that, in the claimed invention, a groove is formed within the sliding portion, in parallel to a side of the sliding portion and along a direction perpendicular to the one direction, to receive vacuum deposited material which occurs on the surface of the susceptor due to the frictional difference between the susceptor and the glass substrate and is pushed by the glass substrate transferring along the one direction in the claimed invention. However, the groove in Tepman and the groove in DuBois are formed in a closed loop having a circular shape around the substrate and, as a result, neither reference discloses this combination of positively recited features.

In response, underlined part of above argument is not unclear. What is one direction? In the context of this case it is assumed to be direction parallel to horizontal. However the other "frictional difference" is not understood. Regarding the shape it is noted that groove around

substrate must follow the shape of the substrate and the susceptor. Modification of AAPA according to the teaching of Tepman and DuBois would necessarily make grooves rectangular. Further stopper pins would similarly be configured for rectangular substrate and susceptor and would function in the same way.

Applicants argue further that neither Tepman nor Dubois disclose a sliding area as a result-effective variable.

In response, it is noted that one of ordinary skill does not have to look at Tepman or Dubois to figure out that there should be sufficient room on the sliding area to allow the bent portion of the substrate to slide to flatness when lift pins retract and substrate comes to rest on the susceptor. Since the length of the bent portion would be variable depending upon substrate size and bending due to heat, the length of the sliding portion would need to be optimized for that requirement.

Further, the test of obviousness is not whether features of the secondary reference may be bodily incorporated into the primary reference's structure, nor whether the claimed invention is expressly suggested in any one or all of the references, rather the test is what the combined teachings would have suggested to those of ordinary skill in the art. *Ex parte Martin* 215 USPQ 543, 544 (PO BdPatApp 1981).

It is noted that a reference (JP 10294287 to Kenji Kawakami) was cited in IDS on 6/1/2007. This reference teaches a situation where a substrate may warp at edges when placed on lift pins and when it is brought to the susceptor by retracting pins, it becomes flat (See Fig 2).

This reference is not used in the rejection but could be used to understand potential problem if, for example the sliding portion does not have adequate space.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ram N Kackar/
Primary Examiner, Art Unit 1716